



**MINNESOTA DEPARTMENT OF PUBLIC SAFETY  
State Fire Marshal Division**

**STATEMENT OF POLICY**

Policy #: INS-11 (2007)	Subject of Policy: Wood Interior Finish		
Reviewed and Approved By: Jerry Rosendahl	Title: State Fire Marshal	Effective Date: July 10, 2007	Revised Date: July 10, 2007

**APPLIES TO:**

All Inspection Personnel, Inspection Supervisors, Code/Plans Specialists.

**PURPOSE:** The purpose of this policy is to provide uniform enforcement and application provisions relating to the classification of wood interior finish found in MSFC (07) Section 806.1.

**POLICY:**

**SECTION 1 – INTRODUCTION**

This fire safety information sheet is based on the 2007 Minnesota State Fire Code (MSFC) (07). The purpose of this information sheet is to provide uniform enforcement and application provisions relating to the classification of wood interior finish found in MSFC (07) Section 806.1.

**SECTION 2 – WOOD INTERIOR FINISH**

**2.1 Wood materials with unknown flame spread ratings**

Interior finish materials with a flame spread index of 76-200 are considered to have a class C (or III) flame spread rating according to MSFC (07) Section 806.2. When wood is applied as an interior finish, it is often difficult to determine the type of wood for purposes of evaluating the flame spread rating.

When a building owner is unable to provide documentation as to the actual flame spread rating of existing solid wood interior finish, DSFM inspectors are permitted to accept the following:

- Solid wood materials, including solid plywood, ¼ inch thick and greater can be considered to have a class C (or III) flame spread rating.
- Solid wood materials, including solid plywood, less than ¼ inch thick applied directly against gypsum board or other noncombustible backing can be considered to have a class C (or III) flame spread rating.
- Wood paneling ¼ inch thick and greater with factory applied finish can be considered to have a class C (or III) flame spread rating.
- Wood paneling less than ¼ inch thick with factory applied finish and applied directly against gypsum board or other noncombustible backing (such as gypsum board or concrete block) can be considered to have a class C (or III) flame spread rating.

For the purposes of this policy, the use of the term plywood above can be considered to include particleboard and oriented strand board (OSB). Solid wood is considered to also include materials such as tongue and groove, lumber, and hardboard.

In cases where the wood materials are covered with excessive paint or varnish or are installed in such a way that could lead to excessive flame spread, the inspector should request documentation of the flame spread rating or abatement of the hazard.

## **2.2 Manufactured (mobile) homes**

Additional state and federal requirements apply for interior finishes found in manufactured (mobile) homes. When a building owner is unable to provide documentation as to the actual flame spread rating of existing solid wood interior finish in a manufactured (mobile) home, DSFM inspectors are permitted to accept the following:

- Homes with a tag indicating that it meets the Minnesota Mobile Home Code can be considered to have a class C (or III) flame spread rating.
- Homes with a tag indicating that it meets the Federal Mobile Home Construction and Safety Standards act can be considered to have a class C (or III) flame spread rating.

## **2.3 Flame spread reducing treatments**

Paint and varnish materials, usually called flame-spread reducing coatings, are available on the market. These coatings can be applied to wood materials for the purpose of reducing the flame spread rating and work as intumescent materials that expand, or swell, when heated. The advantage of these coatings is that they can be applied to existing combustible interior finish for the purpose of addressing an excessive or unknown flame spread characteristic.

Flame spread reducing paints or coatings are typically available from large home stores or specialty paint shops. In some cases, it may be necessary to place a special order since these paints are specialized and often not carried in stock. When applying flame spread reducing paints, it is critical to apply the coating at the proper coverage. Applying the paint too thinly will result in ineffective treatment. State Fire Marshal Division personnel are not allowed to recommend or endorse a particular product or vendor.

## **2.4 Wood combustible decorative materials**

Wood combustible decorative materials shall be in accordance with MSFC (06) Section 806.1 and Table 806.3.

### **RATIONALE:**

Solid wood interior finish with a thickness of 1/4 inch or greater is frequently found in existing buildings, especially residential occupancies such as day care and foster care homes. Often it is difficult to determine the flame spread rating for these materials, thus requiring removal or coverage with a noncombustible material or flame spread reducing coating. Based on a review of Steiner Tunnel test data, most solid woods, including plywood, can be considered to have a Class C (or III) flame spread rating. Extensive flame spread data from the American Forest and Paper Association is included with this policy.

For solid wood materials  $\frac{1}{4}$  inch and greater in thickness, the flame spread rate becomes less dependent on the sample thickness. With thinner materials, however, rapid flame spread can result when flame spread occurs on both sides of the fuel. For this reason, materials less than  $\frac{1}{4}$  inch in thickness are required to be applied directly against a noncombustible surface.

Especially in residential buildings, little additional safety can be expected by requiring removal simply because documentation can not be found for existing wood materials. In most cases, other fuels such as the unregulated upholstered chair or sofa will have a higher heat release rate and drive a compartment to flashover much faster than solid wood materials applied on a wall.

**Definitions:**

**Oriented strand board (OSB)** is a panel product made of aspen or poplar (as well as southern yellow pine in the US) wafers or strands which are bonded together under heat and pressure using a waterproof phenolic resin adhesive or equivalent waterproof binder. The strands in the outer faces of OSB are oriented along the long axis of the panel thereby, like plywood, making it stronger along the long axis as compared to the narrow axis.

**Particleboard** is a chip or fiber based composite material combined with a synthetic resin or other suitable bonding system and joined together under heat and pressure in boards.

**FLAME-SPREAD CLASSIFICATION OF WOODS**

Species of Wood	Flame Spread	Source*
Birch, yellow	105-110	UL
Cedar, Alaska yellow	78	CWC
Cedar, eastern red	110	HUD/FHA
Cedar, Pacific Coast yellow	78	CWC
Cedar, western red	70	HPMA
Cottonwood	115	UL
Cypress	145-150	UL
Cypress, bald	145-150	UL
Fir, Douglas	70-100	UL
Gum, red	140-155	UL
Hemlock, West Coast	60-75	UL
Lodgepole pine	93	CWC
Maple flooring	104	CWC
Maple, white (sugar)	104	CWC
Oak, red or white	100	UL
Pine, eastern white	85	CWC
Pine, Idaho white	72	HPMA
Pine, northern white	120-215	UL
Pine, ponderosa	105-200	HUD/FHA
Pine, red	142	CWC
Pine, southern yellow	130-190	HUD/FHA
Pine, western white	75	UL
Poplar	170-185	UL
Poplar, yellow	170-185	UL
Redwood	70	UL
Spruce, eastern white	65	CWC, UL
Spruce, northern	65	UL
Spruce, Sitka	100	UL
Spruce, western	100	UL
Spruce, white	65	CWC
Sweetgum	140-155	UL
Walnut	130-140	UL

**Plywood's**

Douglas fir, 1/4-inch	120	HUD/FHA
Lauan, three-ply urea glue, 1/4-inch	110	HUD/FHA
Particleboard, 1/2-inch	135	HPMA
Redwood, 3/8-inch	95	CRA
Redwood, 5/8-inch	75	CRA
Walnut, 3/4-inch	130	HUD/FHA

**\*Source:**

CRA: California Redwood Association  
Data Sheet-2D2-7L (Lumber)  
Data Sheet-2D2-7P (Plywood)

HPMA: Hardwood Plywood  
Manufactures Association  
HUD/FHA: Flame-spread Ratings for Various  
Material

CWC: Canadian Wood Council  
Data File FP-6

UL: Underwriters Laboratories UL 527,  
May, 1971